



PATENT
Attorney Docket No.: AHC-001

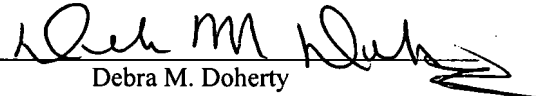
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPELLANTS: Edward C. Carman, Jr. et al. CONF. NO. 9776
SERIAL NO.: 10/081,273 GROUP NO.: 3772
FILING DATE: February 21, 2002 EXAMINER: Huong Q. Pham
TITLE: MULTIPLE USE HANDLE SUPPORT FOR DISTRIBUTING FORCES

CERTIFICATE OF FIRST CLASS MAILING UNDER 37 C.F.R. 1.8

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Debra M. Doherty

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
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Alexandria, VA 22313-1450

Sir:

Transmitted herewith for filing is/are the following document(s):

1. Fee Transmittal;
2. Appeal Brief; and
3. Return Postcard

If the enclosed papers are considered incomplete, the Mail Room or other persons are respectfully requested to contact the undersigned collect at (617) 261-3100.

A check in the amount of \$250.00 is enclosed to cover the filing fee. If the fee is insufficient, the balance may be charged to Deposit Account No. 50-1721, Reference No. AHC-001. A duplicate of this letter is enclosed for accounting purposes.



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DATE: APRIL 27, 2007



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Application Serial Number	10/081,273
Filing Date	February 21, 2002
First Named Inventor	Carman
Group Art Unit	3772
Examiner Name	Pham, Huong Q.
Attorney Docket No.	AHC-001
Confirmation No.	9776

METHOD OF PAYMENT

1. ☒ Payment Enclosed:
☒ Check ☐ Money Order ☐ Other
2. ☒ The Commissioner is hereby authorized to credit or charge any fee indicated below for this submission to Deposit Account No. 50-1721.
☐ Required Fees (copy of this sheet enclosed).
☒ Additional fee required under 37 CFR 1.16 and 1.17.
☒ Overpayment Credit.
3. ☒ Applicant claims small entity status.

FEE CALCULATION

1. FILING/SEARCH/EXAM/SIZE FEES

Large Entity

Fee (\$)	Fee Description	Fee Paid
300	Utility filing fee	
500	Utility search fee	
200	Utility exam fee	
250	Utility size fee (each add'l 50 pgs. over 100)	
200	Design filing fee	
100	Design search fee	
130	Design exam fee	
250	Design size fee (each add'l 50 pgs. over 100)	

	Number Filed	Number Extra	Rate	Amount
Total Claims	- 20 =		x \$ 50.00 =	

Independent Claims	- 3 =		x \$200.00 =	
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☐ Multiple Dependent Claim(s), if any \$360.00 =

TOTAL:

SMALL ENTITY DISCOUNT:

SUBTOTAL (1) (\$) 0.00

2. AMENDMENT CLAIM FEES

Claims Remaining After Amend.	Highest No. Previously Paid For	Present Extra	Rate	Fee Paid
Total	-	=	x \$ 50.00 =	
Indep.	-	=	x \$200.00 =	

☐ First Presentation of Multiple Dep. Claim + \$360.00 =

TOTAL: (\$)

SMALL ENTITY DISCOUNT: (\$)

SUBTOTAL (2) (\$) 0.00

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee (\$)	Small Entity Fee (\$)	Fee Description	Fee Paid
130	65	Surcharge - late filing fee or oath	
50	25	Surcharge - late provisional filing fee or cover sheet	
130	130	Non-English specification	
2,520	2,520	Request for ex parte reexamination	
120	60	Extension for reply within first month	
450	225	Extension for reply within second month	
1020	510	Extension for reply within third month	
1590	795	Extension for reply within fourth month	
2160	1080	Extension for reply within fifth month	
500	250	Notice of Appeal	
500	250	Filing a brief in support of an appeal	250.00
1000	500	Request for oral hearing	
400	400	Petitions to the Commissioner (Gp. I)	
200	200	Petitions to the Commissioner (Gp. II)	
130	130	Petitions to the Commissioner (Gp. III)	
180	180	Submission of Information Disclosure Statement	
790	395	Filing a submission after final rejection (37 CFR 1.129(a))	
790	395	For each additional invention to be examined (37 CFR 1.129(b))	
100	100	Certificate of Correction for applicant's error	
130	65	Submission of Terminal Disclaimer	
Other fee (Specify)			
Other fee (Specify)			

SUBTOTAL (3) (\$) 250.00

SUBTOTAL (1) 0.00

SUBTOTAL (2) 0.00

SUBTOTAL (3) 250.00

TOTAL (\$) 250.00

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Respectfully submitted,

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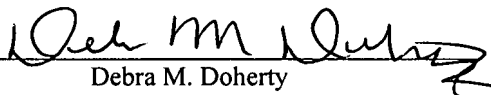
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Debra M. Doherty

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APPEAL BRIEF

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REAL PARTY IN INTEREST

The real party in interest is Advance Handle Company, LLC, by reason of assignment from the inventors, Edward C. Carman, Jr. and Edward C. Carman III recorded on October 29, 2002 at Reel 013434, Frames 0726-0729.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1-3, 6-10, 12-14, 17-20, 23-26, 28-30 and 33-41 are pending in the application. Each of those claims has been rejected. Those rejections form the basis of this appeal.

STATUS OF AMENDMENTS

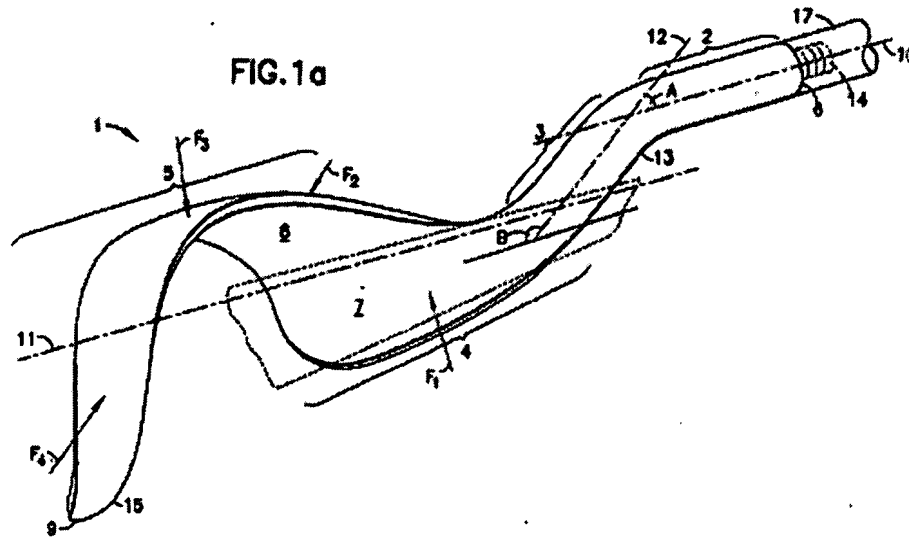
An amendment was filed on April 26, 2007. That amendment deleted the phrase “or the like” from claims 1, 18 and 33. The amendment was made in response to the rejection of claims 1, 18 and 33 under 35 U.S.C. §112, second paragraph.

Claims 40 and 41 also were amended in response to the objection as to antecedent basis. The references to “second axis” and “third axis” were deleted.

No other amendments have been filed since the final action of November 21, 2006. Applicant submitted remarks, on February 21, 2007, for a Pre-Appeal Brief Conference. The Pre-Appeal Brief Review resulted in a panel decision that “...there is at least one actual issue for appeal.”

SUMMARY OF THE CLAIMED SUBJECT MATTER

Applicant’s invention is a handle for one-handed ergonomic manipulation of a tool that is detachably connectible to the handle. Such tools may include brushes, paint rollers, window squeegees, scrappers, spray wands, brooms, shovels, rakes and the like. (2:13-15). One embodiment of the device is illustrated in FIG. 1A, reproduced below.



The device 14 includes a handle body 1 having an attachment post 2 at the forward end of the handle and a connector 14 at the forward end of the post 2 constructed to releasably attach a shaft 17 of a tool. (6:4-11). The handle may include a grip 3 fixed to the attachment post 2 to define a pistol-grip (see Apl. ¶0006) configuration. A seat portion 4 extends rearwardly from the grip 3 and is adapted to underlie the bottom of the user's wrist without restraining side-to-side flexure of the wrist when the grip is grasped. (7:12-14; 7:22-8:2). A band-like, elongate helical brace 5 extends from one side of the seat portion 4 and rearwardly in a continuous helix to surround the lower arm of the user. (8:4-7, FIG. 1a, FIG. 3).

Of the appealed claims, three are independent, namely, claims 1, 18 and 33. The subject matter of those claims may be summarized as follows:

Claim 1

- An ergonomic handle having a grip and being detachably connectable to a tool;
- An attachment post having a connector at its forward end to releasably attach a tool;
- A seat portion to underlie the bottom of the user's wrist without restraining side-to-side flexure of the wrist;
- A band-like elongate brace that (1) extends from a side of the seat portion, (2) extends rearwardly in a continuous helix that (3) wraps progressively to define, in cooperation with the seat portion, a substantially complete revolution about an open space to accommodate the user's lower arm.

Claim 18

Claim 18 is essentially the same as claim 1 except that it omits the limitation of the seat portion. The band-like elongate brace is defined as “extending transversely to one side of the grip”. The claim is directed to the embodiment illustrated in FIGS. 5A and 5B of the application.

Claim 33

Independent claim 33 is directed to the combination of the claimed ergonomic handle in combination with a hand-held tool.

Dependent Claims

Dependent claims 2, 3, 6-10, 12-14 and 17 depend directly or indirectly from claim 1 and include all of the same limitations. **Claim 2** includes the limitation that the space circumscribed by the brace is conical. (8:4-18). Dependent **claim 8** includes the limitation that the helix is constructed with a helix angle that increases from forward to rearward. Although the written original description does not include the “helix angle” terminology, it is inherent in the device and the description of the “varying pitch” of the helix. (8:4-10). Dependent **claim 9** depends directly from claim 1 and adds the further limitation that the helix has a radius of curvature that increases from forward to rearward. (8:10-15). **Claim 10** adds the limitation that the brace has a substantially straight portion at its distal end. (8:18-25; FIG. 3). **Claims 12-14** include limitations to the orientation of the brace by which the wrist is permitted freedom of movement about first, second or third axes. (7:12-8:2; 11:5-24). **Claim 17** includes limitations to the seat being substantially flat. (7:12-20).

Claims dependent from **claim 18** as well as claims dependent from **claim 33** include additional limitations similar to those discussed above in connection with the claims dependent from claim 1.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Rejections to be reviewed on appeal include the following:

1. Rejection of claims 1, 18 and 33 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement, apparently because “pistol grip” and “substantially complete revolution” “lack proper antecedent basis in the specification.

2. Rejection of claims 1, 18, 33 and 37 under 35 U.S.C. §112, second paragraph, as indefinite because of the use of the term “pistol-grip” (claims 1, 18 and 33) and the phrase “a pitch decreases from forward to rearward” in claim 37.

3. Rejection of claims 1-3, 6-10, 12-14, 17-20, 23-26, 28-30 and 33-41 as anticipated under 35 U.S.C. §102(b) by Stephens patent 5,331,989.

ARGUMENT

1. The recitation in claims 1-18 and 33 of “pistol grip” and “substantially complete revolution” comply with the enablement requirement of 35 U.S.C. §112.

The rejection, based on lack of enablement, appears to confuse that requirement of the patent laws with the notion of an asserted issue of antecedent basis.

The test of whether the enablement requirement of 35 U.S.C. §112, first paragraph, has been satisfied, is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent [application] coupled with information known in the art without undue experimentation. In re Wands, 858 F.2d 731, 737, 8 U.S.P.Q.2d, 1400-1404 (Fed Cir. 1988). Additionally, in order to reject the claim on the basis of enablement, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. In re Wright, 999 F.2d 1557, 1562, 27 U.S.P.Q.2d 1510, 1513 (Fed. Cir. 1993). See M.P.E.P. 2164.01.

Here, the asserted basis for the enablement rejection is the incorrect assertion that there is no proper antecedent basis for “pistol grip”. The description of the device as having a “pistol grip” is explicitly recited in the application (4:11-14). The pistol grip configuration also is plainly illustrated in the drawings. There is nothing to suggest that one of ordinary skill would have to engage in any “undue experimentation” or, indeed, in any experimentation at all to make the claimed device. The term “pistol grip” is a well known commonly employed term.

To the extent that the enablement rejection was based on the notion that the application fails to describe the claimed helical brace sufficiently so that one of ordinary skill in the art could not make the described brace to have a substantially complete revolution also is plainly without a reasonable basis. The application and drawings (e.g., FIG. 3) show quite plainly the configuration for such a brace.

The rejection should be reversed.

2. The recitation in claims 1, 18 and 13 of “pistol grip” and in claim 37 of the phrase “a pitch decreases from forward to rearward” satisfies the claiming requirements of 35 U.S.C. §112, second paragraph.

The phrase “or the like” has been proposed to be removed in the amendment filed April 26, 2006. Assuming entry of that amendment, the rejection as to that phrase would no longer apply. To the extent that the rejection is based on the theory that the term “pistol grip” does not particularly point out and distinctly claim the subject matter that is incorrect as discussed above in connection with the enablement requirement. The term “pistol grip” is a commonly understood term. The rejection fails to point out what is unclear about the use of that term.

As for claim 37, the rejection appears to be based on a misunderstanding of the relationship between the pitch of adjacent turns of a helix and helix angle. The application, as filed, described the pitch of the helix as decreasing from the forward to the rearward portions of the helix. (8:4-25). Because of the relationship between pitch and pitch angle, and because the brace does not make more than one turn, appellants considered it better to describe the characteristic of the brace as referring to a varying “helix angle” rather than having a “varying pitch”. As explained in a response filed on or about September 18, 2006, a helix is defined as “the three-dimensional curve that lies on a cylinder or cone, so that its angle to a plane perpendicular to the axis is constant”. See <http://www.thefreedictionary.com/helix> (Exhibit A). That angle is the “helix angle”. Helix angle is defined as “the constant angle at which a helix cuts the elements of a cylinder or cone.” (See <http://www.thefreedictionary.com/helix+angle>) (Exhibit B). As can be seen from Exhibit B, the pitch between turns is constant. However, if the pitch between adjacent turns was varied, that would require a change in the helix angle to conform to the change. When the pitch between adjacent turns is decreased (i.e., the distance between the adjacent turns is lessened) the helix angle necessarily increases. In applicant’s preferred embodiment, the brace includes one helical turn. Thus, where applicant’s invention

need not, and preferably does not, employ a plurality of complete turns, it is more appropriate to refer to the changing characteristic of the single turn by referring to a changing helix angle, rather than a changing pitch. The written description, as well as claims 8 and 24, were amended.

To the extent that the rejection is based on the notion that the “distance between turns is arbitrary”, the claim is not arbitrary. It specifies that the helix angle increases (which would correspond to a decrease in pitch). The actual distance between turns or how or where at turn begins is irrelevant to the claim.

3. Where Stephens patent 5,331,989 fails to disclose a number of limitations recited in each of the claims, none of claims 1-3, 6-10, 12-14, 17-20, 23-26, 28-30 or 30-41 is anticipated.

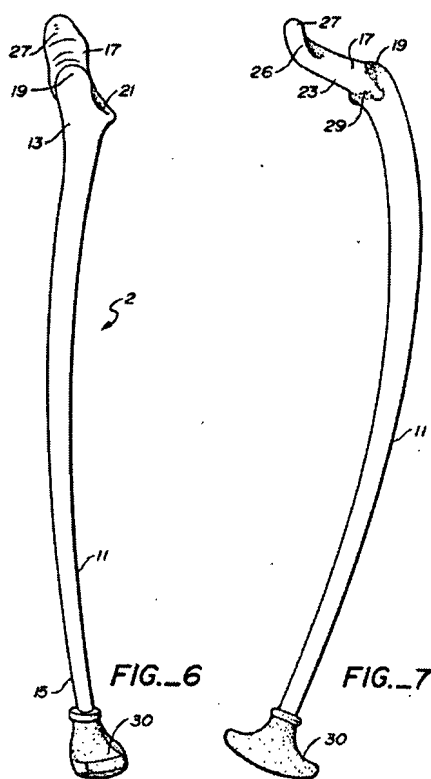
Reconsideration is requested of the rejection of claims 1-3, 6-10, 12-15, 17-20, 23-26 and 28-30. As anticipated under 35 USC §102(b) by Stephens Patent 5,331,989. Anticipation under 35 USC §102 requires each and every limitation of the claim to be disclosed in a single prior art reference, either expressly or inherently. The anticipating reference must disclose the elements in the arrangement called for by the claim. *In re Bond* 15 USPQ 1566 (Fed. Cir. 1990); *Connell v. Sears Roebuck & Co.*, 220 USPQ 193 (Fed Cir. 1983). If any limitation of the claim is missing from the reference, there is no anticipation.

Stephens fails to disclose a number of limitations of claim 1, including:

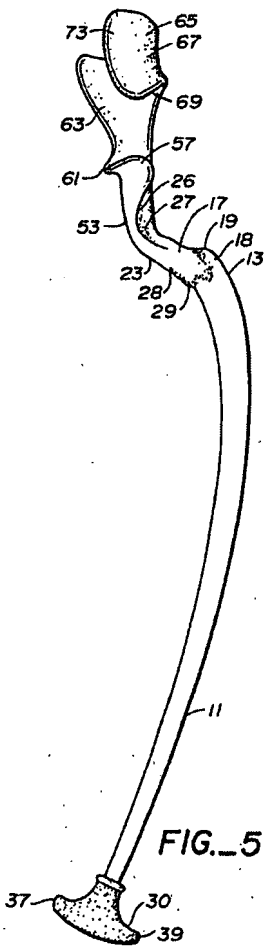
- An ergonomic handle detachably connectable to a tool, or the like;
- An attachment post having a connector at its forward end to releasably attach a tool;
- A seat portion to underlie the bottom of the user’s wrist without restraining side-to-side flexure of the wrist;
- A band-like elongate brace that (1) extends from a side of the seat portion, (2) extends rearwardly in a continuous helix that (3) wraps progressively to define, in cooperation with the seat portion, a substantially complete revolution about an open space to accommodate the user’s lower arm.

Stephens relates to a walking aid, either a cane or a crutch, having a long shaft 11, that extends from the user’s hand to the walking surface, with a specially configured foot member 30 permanently attached to the end of the shaft by a hard epoxy (7:6-12). It bears no relation to

applicant's invention of a handle for one-handed, ergonomic manipulation of a tool. Two embodiments are described. The first embodiment, described at 3:46-4:48 is said to include the shaft 11 and a hand grip 17 having special contours that "...[allow] the thumb bones, which are the strongest bones in the hand, to support some of the weight of the body typically borne by the wrist and fingers." (3:66-4:2). The hand grip 17 is "...is contoured to support the inner surface of the hand of the user and to distribute the pressure on the base of the hand over the widest possible area." (4:22-25). This embodiment describes, essentially, a cane with a specially contoured handgrip. It is illustrated in FIGS 6 and 7, reproduced below:



The second Stephens embodiment, referred to as a "crutch," has the shaft and handgrip of the first embodiment with an additional element, an elongated cuff 51 engageable with the lower arm. The cuff is described as having a "lower forearm support portion 53" and an "upper forearm portion 65". The upper and lower forearm portions 65, 53 are joined by a connecting portion 63. The lower forearm support portion 53 has walls that define a channel that conforms to the forearm and wrist to provide a seat and guide that supports the forearm and wrist. (4:58-62, 5:48-52). See FIG. 5, reproduced below:



Claim 1 calls for a connector at the forward end of the attachment post, the connector being constructed to releasably attach a tool, or the like, to the handle. Stephens plainly does not disclose this limitation of the claim. Indeed, the Stephens device is not reasonably considered as being anything other than what is plainly described as a configuration for a cane or a crutch. The action refers to no prior art to indicate that the cane or a crutch may be used as a handle, detachably connectable to a tool of any kind, much less to serve as a handle for single-handed ergonomic manipulation of a tool. To the extent the rejection is based on the notion that the epoxied foot member at the ground-engaging end of the crutch or cane is a "tool" or anything like a "tool", it is not detachably connectable to the shaft of the cane or crutch. It is attached by epoxy. There is no connector by which a tool can be releasably attached to the shaft of the cane/crutch.

Claim 1 also requires the seat portion to underlie the bottom of the user's wrist when the grip is grasped without restraining side-to-side flexure of the wrist. Stephens discloses no such arrangement. Stephens' lower forearm support portion 53 is said to have "... an outer wall 57, a rear wall 59 and an inner wall 55 which form a lower support channel ..." (4:58-60). While the rear wall 59 may be said to underlie the bottom of the user's wrist, the inner and outer walls 55, 57 form a channel that necessarily embraces the inside and outside of the wrist and necessarily will restrain side-to-side flexure of the wrist. Indeed, the purpose of the channel is said to "... [form] an alignment means for an arm when it is inserted into the opening." (5:44-48). The Stephens device is said to be "... particularly contoured to conform to the forearm and wrist and to provide a seat and guide which supports the forearm and wrist in a desirable angle relative to the elongated shaft and the body of the user." (5:48-52). In other words, the Stephens device serves to confine the wrist and forearm in a predetermined orientation. With applicant's claimed invention, the wrist is provided the freedom of side-to-side flexure by which the user can control the relation of the device to the lower arm and wrist.

Claim 1 also defines the brace as being band-like and elongated in shape, as well as being integral with and extending from one side of the seat portion. The brace is further defined as extending rearwardly and in a continuous helix that wraps progressively about the arm-receptive space to define a complete revolution. Stephens does not disclose any component that can reasonably be considered as being a continuous helical element. To the extent that the rejection relies on the notion that the upper forearm-engaging portion 65 of the cuff 51 in Stephens is "constructed substantially in the form of a helix" that plainly is incorrect. There is nothing helical about the shape of the upper forearm-engaging portion 65 of the "elongated cuff 51". The rejection of March 17, 2006 appears to justify considering the brace 65 as being helical on the theory that the upper forearm-engaging portion 65 is shown as having a "... a top edge higher than a lower edge". That proposal was supplemented by a copy of Fig 4 of Stephens on which some additional lines were sketched. It is understood that those drawn lines were intended to represent the claimed helical brace. Those lines, however, are merely drawn arbitrarily and have no meaningful relation to the actual Stephens device. Indeed, one could draw a line of any shape on the inner surface of the upper forearm-engaging portion 65. Certainly, there is nothing in Stephens to suggest any helical element at all, much less that as claimed. Indeed, by way of

analogy, one could draw a helix on the inner or outer surface of a cylindrical tube. That would not make the tube a helical member.

Moreover, Stephens does not disclose any band-like, elongate member that is integral with and extends from one side of the seat portion. Stephens does not disclose such a brace that also extends rearwardly and in a continuous helix that wraps progressively and in cooperation with the seat portion, defines a substantially complete revolution about the arm-receptive space.

Each of claims 2, 3, 6-10, 12-14 and 17 depends directly or indirectly from claim 1 and is not anticipated by Stephens for the same reasons. These dependent claims include additional limitations also not disclosed by Stephens. **Claim 8** includes the limitation that the helix is constructed with a helix angle from a forward to a rearward direction. Where Stephens has no helix, it cannot have the claimed helix angle. The same applies to **claim 9** which defines the helix as also having a radius of curvature that increases from forward to rearward. **Claim 10** includes the limitation that the brace is constructed with a substantially straight portion at its distal end. Although the rejection states that the upper forearm engaging portion 65 "... has a substantially straight portion at its distal end" there is nothing to support that either in the written description of Stephens or in the drawings. . Each of **claims 12 to 14** includes limitations to the construction of the brace and its orientation so that the wrist is free to flex to allow the hand to twist on the grip. The basis of the rejection appears to be if the device is used by a small person or a child, the wrist would be capable of being flexed. While applicant's invention is intended to be adaptable to a range of arm sizes, it is not intended to be used with all arm sizes. The rejection ignores the fact that the size of the device is approximated to the size of the individual using it. The action proposes an extreme, unrealistic, variation in size. One would expect that a child would be provided with small crutches and, if a child were provided with the crutch of Stephens in a size adapted to the child's size, it would function as the Stephens device in which a channel in the lower forearm support 53 would restrict side-to-side wrist flexure. See also Stephens recognition of this at 7:2-4.

Claim 16 includes the additional limitation that the seat is substantially flat from forward to rearward. The surface 27 is described by Stephens as being "... contoured in a somewhat concave shape to receive and seek the heel of the hand." (4:31-34). That is not substantially flat, and certainly is not described in Stephens as being substantially flat. It is a contoured surface adapted to engage and support the heel of the hand. **Claim 17** is directed to the seat which

underlies the wrist and is substantially flat. Stephens does not anticipate claim 17 for this additional reason.

Independent claim 18 differs principally from claim 1 in that it omits the limitation of the seat portion. **Claim 18** is directed to the embodiment illustrated in Fig. 5A and 5B. The claim to recites the nature of the device in the preamble and including the limitation of the connector at the forward end of the attachment post for releasable attachment of a tool, or the like, as well as the additional limitations relating to the structure and configuration of the elongate, band-like brace. The claim differs from claim 1 in that the brace is integral with and extending transversely from one side of the grip. As discussed above in connection with claim 1, Stephens does not disclose the claimed brace. Moreover, to the extent that Stephens may be considered as having a grip, it does not have anything that extends transversely from one side of the grip, much less the claimed brace.

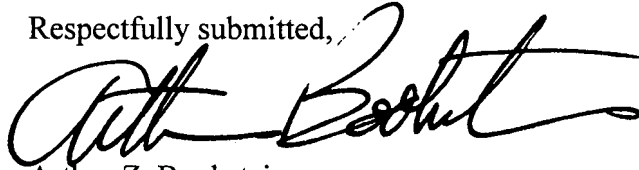
Each of claims 19, 20, 20-26, 28-30 depends directly or indirectly from claim 18, and is not anticipated by Stephens for the same reasons. Additionally, **claim 24** includes further limitations that are distinguishable over Stephens, namely, the feature of a helix angle that increases from forward to rearward. Where Stephens does not disclose a helical brace, it cannot disclose the claimed helix angle. The same reasoning applies to **claim 25** which includes the further limitation that the helix is constructed with a radius of curvature that increases from forward to rearward. **Claim 26** includes the additional limitation that the brace includes a substantially straight portion at its rearward end. **Claims 28-30** each include limitations directed to the configuration of the brace by which the wrist is free to flex to allow the hand to twist or flex about the grip (the second axis). As discussed above in connection with claims 12-14, Stephens does not disclose these features.

Independent **claim 33** and dependent **claims 34-41** include limitations discussed above in connection with independent claims 1 and 18 and their respective independent claims. The comments and reasons for distinguishing over Stephens apply to claims 33-41 as well.

CONCLUSION

The rejections should be reversed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Arthur Z. Bookstein', written over the typed name.

Arthur Z. Bookstein

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APPENDIX A

Claims as Appealed

1. (Previously Presented) A handle for one-handed ergonomic manipulation of a tool or the like, the tool being detachably connectible to the handle, comprising:
 - the handle having forward and rearward ends;
 - an attachment post at the forward end of the handle, the post having a first longitudinal axis;
 - a connector at the forward end of the post, constructed to releasably attach a tool or the like to the handle;
 - a grip fixed to the attachment post, the grip having a second longitudinal axis extending transverse to the first axis in a pistol-grip configuration;
 - a seat portion fixed to the grip and extending rearward therefrom to underlie the bottom of the user's wrist when the grip is grasped without restraining side-to-side flexure of the wrist;
 - and
 - a band-like, elongate brace integral with and extending from one side of the seat portion, the brace extending rearwardly and in a continuous helix that wraps progressively and, in cooperation with the seat portion, defines a substantially complete revolution about an open space to accommodate and surround the lower arm of the user, from the wrist to the rearward end of the device.
2. (Previously Presented) An ergonomic handle according to claim 1, wherein said open space circumscribed by said brace has a conical shape.
3. (Previously Presented) An ergonomic handle according to claim 1, wherein said attachment post, said grip, said seat, and said brace are integrally formed as sections of a body.
- 4-5. (cancelled)

6. (Previously Presented) An ergonomic handle according to claim 1, wherein said first and second axes intersect in an acute angle.

7. (Previously Presented) An ergonomic handle according to claim 6, wherein said second axis and the seat intersect at an angle which is supplementary to said acute angle.

8. (Previously Presented) An ergonomic handle according to claim 1, wherein said helix is constructed with a helix angle that increases from forward to rearward.

9. (Previously Presented) An ergonomic handle according to claim 1, wherein said helix is constructed with a radius of curvature that increases from forward to rearward.

10. (Previously Presented) An ergonomic handle according to claim 1, wherein said brace is constructed with a substantially straight portion at its distal end to provide additional space for insertion of the arm into said conical space.

11. (Cancelled).

12. (Previously Presented) An ergonomic handle, according to claim 1, wherein said brace is oriented so that the wrist is free to flex to allow the hand to twist on said grip about said second axis.

13. (Previously Presented) An ergonomic handle, according to claim 1, wherein said brace is oriented so that the wrist is free to flex about a third axis displaced rearward of said second axis and transverse thereto.

14. (Previously Presented) An ergonomic handle, according to claim 1, wherein said brace is oriented so that the wrist is free to flex to allow the hand to twist on said grip about said second axis and to flex about a third axis displaced rearward of said second axis and transverse thereto, said flexing operating to lock the wrist and forearm into engagement with the brace to distribute forces away from the wrist.

15-16. (cancelled)

17. (Previously Presented) An ergonomic handle, according to claim 1, wherein said seat is substantially flat from forward to rearward.

18. (Previously Presented) A handle for one-handed ergonomic manipulation of a tool or the like, the tool being detachably connectible to the handle, comprising:

the handle having forward and rearward ends;
an attachment post at the forward end of the handle, the post having a first longitudinal axis

a connector at the forward end of the post, constructed to releasably attach a tool or the like to the handle;

a grip fixed to the attachment post, the grip having a second longitudinal axis extending transverse to the first axis in a pistol-grip configuration;

a band-like, elongate brace integral with and extending transversely to one side of the grip, the brace extending rearwardly and in a continuous helix that wraps progressively and for a substantially complete revolution to define an open space to accommodate and surround the lower arm of the user, from the wrist to the rearward end of the device.

19. (Previously Presented) An ergonomic handle, according claim 18, wherein said open space circumscribed by said brace has a conical shape.

20. (Previously Presented) An ergonomic handle, according claim 18, wherein said attachment post, said grip, and said brace are integrally formed as sections of a body.

21-22. (cancelled)

23. (Previously Presented) An ergonomic handle, according claim 18, wherein said first and second axes intersect in an acute angle.

24. (Previously Presented) An ergonomic handle, according to claim 18, wherein said helix is constructed with a helix angle that increases from forward to rearward.

25. (Previously Presented) An ergonomic handle, according to claim 18, wherein said helix is constructed with a radius of curvature that increases from forward to rearward.

26. (Previously Presented) An ergonomic handle, A device according to claim 18, wherein said brace is constructed with a substantially straight portion at its rearward end to provide additional space for insertion of the arm into said conical space.

27. (Cancelled)

28. (Previously Presented) An ergonomic handle, according to claim 18, wherein said brace is oriented so that the wrist is free to flex to allow the hand to twist on said grip about said second axis.

29. (Previously Presented) An ergonomic handle, according to claim 18, wherein said brace is oriented so that the wrist is free to flex about a third axis displaced rearward of said second axis and transverse thereto.

30. (Previously Presented) An ergonomic handle, according to claim 18, wherein said brace is oriented so that the wrist is free to flex to allow the hand to twist on said grip about said second axis and to flex about a third axis displaced rearward of said second axis and transverse thereto, said flexing operating to lock the wrist and forearm into engagement with the brace.

31-32. (Cancelled)

33. (Previously Presented) In combination with a hand-held tool or the like having a pistol grip, a brace to facilitate one-handed ergonomic manipulation of the tool, the brace comprising:

the brace having a forward end and a rearward end;

the forward end of the brace being attached to the pistol grip, the rearward portion of the brace comprising a band-like, elongate member in the form of a continuous helix that wraps progressively and for a substantially complete revolution to define an open space to accommodate and surround the lower arm of the.

34. (Previously Presented) The combination according to claim 33, further comprising a seat portion fixed to said grip and extending rearward therefrom transverse to the grip and extending between said grip and said brace

35. (Previously Presented) The combination according to claim 34, wherein said brace and seat are integrally formed with said grip.

36. (Previously Presented) The combination according to claim 33, wherein said open space circumscribed by said brace has a conical shape.

37. (Previously Presented) The combination according to claim 33, wherein said helix is constructed with a pitch that decreases from forward to rearward.

38. (Previously Presented) The combination according to claim 33, wherein said helix is constructed with a radius of curvature that increases from forward to rearward.

39. (Previously Presented) The combination according to claim 33, wherein said brace is constructed with a substantially straight portion at its distal end to provide additional space for insertion of the arm into said conical space.

40. (Previously Presented) The combination according to claim 33, wherein said brace is oriented within the device so that the wrist is free to flex to allow the hand to twist on said grip about said second axis.

41. (Previously Presented) A The combination according to claim 33, wherein said brace is oriented within the device so that the wrist is free to flex about a third axis displaced rearward of said pisistol grip and transverse thereto.

42-44. (Canceled)

APPENDIX B

Table of Cases Cited

Federal Cases

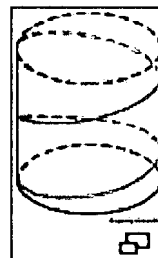
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Federal Statutes

35 U.S.C. §102(b)	4, 6
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he-lix ⁴ (hē' lĭks)*n. pl.* **he-lix-es** or **hel-i-ces** (hĕl' ĭ-sēz', hē' lĭ-)

1. *Mathematics* A three-dimensional curve that lies on a cylinder or cone, so that its angle to a plane perpendicular to the axis is constant.
2. A spiral form or structure.
3. *Anatomy* The folded rim of skin and cartilage around most of the outer ear.
4. *Architecture* A volute on a Corinthian or Ionic capital.



helix
circular helix in a right circular cylinder

[Latin, from Greek; see *wel*-² in Indo-European roots.]

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Thesaurus

Legend: |Synonyms |Related Words |Antonyms

Noun 1. **helix** - a curve that lies on the surface of a cylinder or cone and cuts the element at a constant angle

|spiral

|curve, curved shape - the trace of a point whose direction of motion changes

|double helix - a pair of parallel helices intertwined about a common axis; "the structure of the DNA molecule is a double helix"

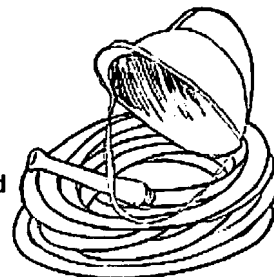


2. **helix** - a structure consisting of something wound in a continuous series of loops; "a coil of rope"

|coil, volute, whorl, spiral

|hank - a coil of rope or wool or yarn

|structure, construction - a thing constructed; a complex construction or entity; "the structure consisted of a series of arches"; "she wore her hair in an amazing construction of whirls and ribbons"



3. **Helix** - type genus of the family Helicidae

|genus Helix

|mollusk genus - a genus of mollusks

|family Helicidae, Helicidae - land snails including the common edible snail and some pests

|edible snail, Helix pomatia - one of the chief edible snails

|garden snail - any of several inedible snails of the genus Helix; often destructive pests

|brown snail, Helix aspersa - serious garden pest having a brown shell with paler zigzag markings; nearly cosmopolitan in distribution

|Helix hortensis - a kind of garden snail

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thefreedictionary.com

Thesaurus

Legend: [Synonyms] [Related Words] [Antonyms]

Noun 1. helix angle - the constant angle at which a helix cuts the elements of a cylinder or cone
[angle - the space between two lines or planes that intersect; the inclination of one line to another; measured in degrees or radians]

